



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,183	12/02/2005	Jean-Marie Pierret	17170/011001	8414
22511	7590	07/27/2006	EXAMINER	
OSHA LIANG L.L.P. 1221 MCKINNEY STREET SUITE 2800 HOUSTON, TX 77010				MULLINS, BURTON S
ART UNIT		PAPER NUMBER		
		2834		

DATE MAILED: 07/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/532,183	PIERRET ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Burton S. Mullins	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1,13,14 and 16-21 is/are rejected.
- 7) Claim(s) 2-12 and 15 is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 21 April 2005 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____ .   |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: ____ .                                   |

**DETAILED ACTION**

*Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

*Information Disclosure Statement*

2. The information disclosure statement (IDS) submitted on 21 April 2005 has been considered by the examiner.

*Drawings*

3. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

*Specification*

4. In the title of the invention, the term ---reversible alternator--- is preferable to "alternostator" since the latter term is not idiomatic. A new title is required that is clearly indicative of the invention to which the claims are directed.

***Claim Objections***

5. Claims 1, 6, 9 and 17 are objected to because of the following informalities: In claim 1, the term “bearing” is not clear, because the claim appears to refer to the machine frame or end shield 4 in Fig.2 having radial outlets 4a/4d. The bearing, per se, is denoted 6 in Fig.2. Further, the terminology “longitudinal wall of a passageway (17)” is not understood because as seen in Fig. 2, the passageway 17 extends in the radial direction relative to the axis, not the “longitudinal” direction. Clarification is required. In claim 6, change “are comprised” to –comprise--. In claim 9, line 2, delete the phrase “in that this” and change to –wherein the--. On line 4, delete the phrase “in that” and change to –wherein--. On line 10, line 3, delete “in that”. In claim 17, line 1, delete “of a”. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

6. Claims 14 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 14, the term “mezzanine” is vague and indefinite because it is not clear what structural features this term imparts to the claim. For purposes of comparison with the prior art, the term will be interpreted as meaning a space above the rear bearing. In claim 18, the phrase “away from the bearing” is vague and indefinite. It will be interpreted as meaning the fins are separate from the rear bearing.

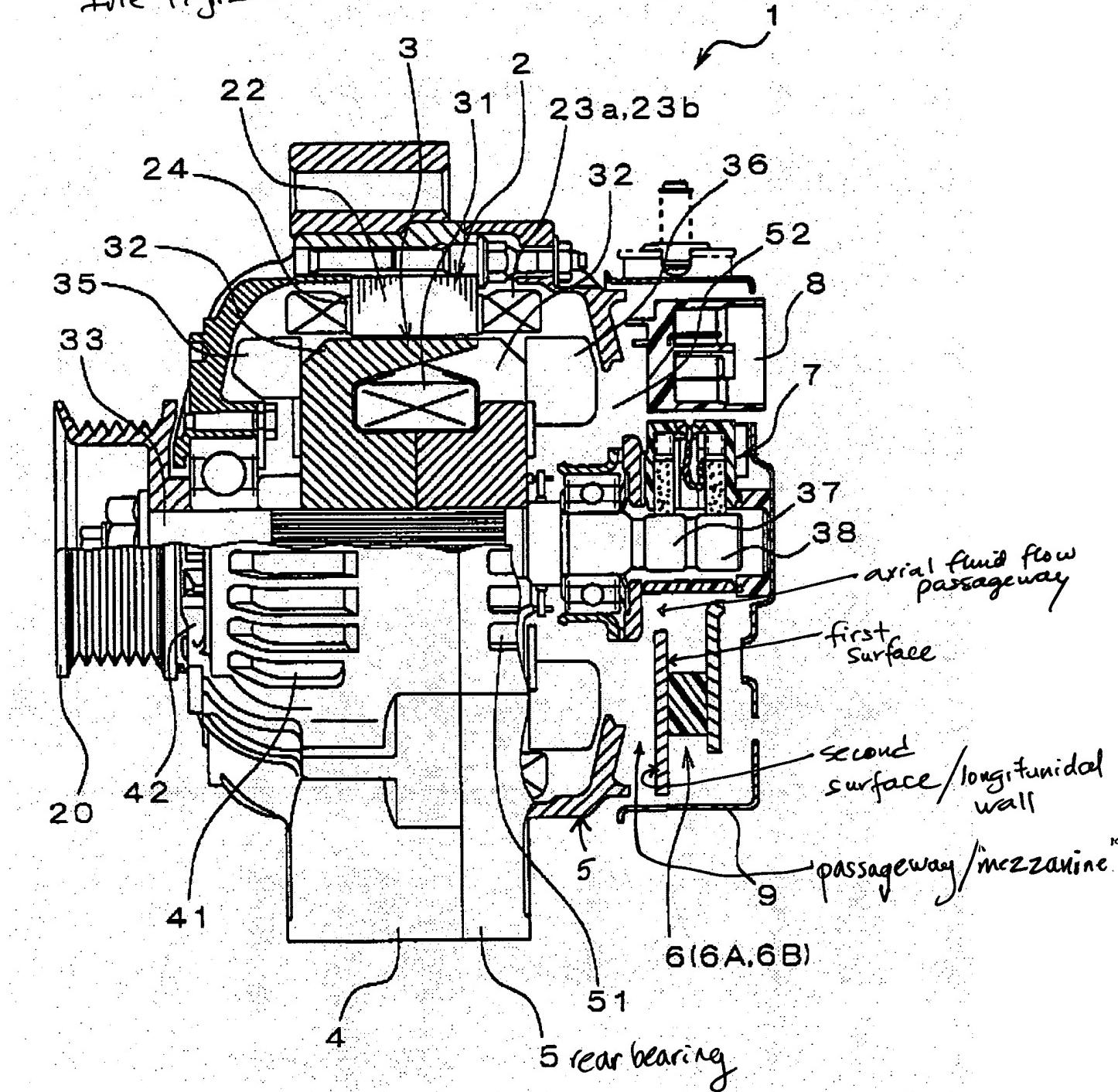
***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 13-14, 16 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Irie (US 6,577,032) in view of Ishikawa et al. (JP 60-35944). Irie teaches a rotating electrical machine comprising: a rear bearing (frame) 5, a rotor 3 centered and mounted on a rotating shaft 33 supported by at least the rear bearing, i.e. the bearing held by the frame 5; the rear bearing comprising radial outlets (air discharge windows) 51 for a cooling fluid; a stator 2 surrounding the rotor; the stator comprising a field coil 23 that has windings 23a/23b forming the phases of the electrical machine (c.2, lines 43-48); a power electronics circuit (rectifier unit) 6 connected to the windings of the stator phases; a heat dissipating bridge (positive heat sink) 63 that has a first surface on which the power electronics circuit, i.e. rectifier elements 66, is mounted and a second surface (not numbered, see marked Fig.1 below) opposite said first surface and oriented toward the rear bearing; said second surface forms a longitudinal wall of a passageway (not numbered, see marked Fig.1 below) for the flow of cooling fluid, and another longitudinal wall of this passageway is formed by the rear bearing 5 supporting the rotor.

Irie Fig. 1



Irie differs in that the second surface of the heat dissipating bridge does not have cooling means arranged in the fluid flow passageway.

Ishikawa teaches a rectifier structure including a diode cooling plate 3 with a boss 2 forming a recess which holds the diodes 4 and further comprising projections 1 which project on the side opposite the recesses and diodes 4 (Fig.3). The projections 1 improve the cooling of the rectifier (abstract).

It would have been obvious to modify Irie and provide a heat dissipating bridge with cooling means such as the projections of Ishikawa arranged in the fluid flow passageway because the projections would have improved the cooling of the rectifier.

Regarding claim 13, a space in Irie between the edge of the positive heat sink 6 and the shaft ~~55~~ forms an axial fluid flow passageway.

Regarding claim 14, Irie includes a space or “mezzanine” [sic] above the rear bearing 5.

Regarding claim 16, Irie includes contacts with the diodes integrated with the heat sink 63 (Fig.8).

Regarding claim 19, Ishikawa’s fins/projections 1 and bridge or cooling plate 3 comprise one single piece.

Regarding claim 20, the circuit of the rectifier in Irie (Fig.8) includes “tracks” or leads 130a/130b connecting power components or diodes 65/66.

Regarding claim 21, Irie teaches an alternator. Statements of intended use carry no patentable weight.

9. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Irie and Ishikawa as applied to claim 1 above, and further in view of Kawano (JP 4-17551). Irie and Ishikawa substantially teach applicant’s invention but do not teach a layer of electrically insulating material between the heat dissipating bridge and the rear bearing.

Kawano teaches an alternator including a rectifier/regulator 26/32 with heat radiating fin 34 mounted to an end frame/bearing 12 via an insulator 31 (Fig.1).

It would have been obvious to modify Irie and Ishikawa and provide an insulator per Kawano between the heat bridge and end frame/bearing to mount and electrically insulate the rectifier.

***Allowable Subject Matter***

10. Claims 2-12 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 2, the prior art does not teach cooling means “arranged radially in the direction of the cooling fluid flow”. In particular, there is no teaching of the orientation of the projections in Ishikawa relative to the cooling fluid flow.

Regarding claim 9, the prior art does not teach that “the rear bearing has a bottom (40) that forms one of the walls of the fluid flow passageway (17), in that this bottom (40) is extended to its external periphery by an edge (41) equipped with lateral outlets (4a-4d) and in that the rear bearing holds at least one deflector (24) placed at the exit of the lateral outlets (4a-4d) of the edge (41) of the rear bearing (4).”

11. Claim 18 is would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. Claim 18 depends from claims 2 and 3 which include allowable subject matter as noted above.

***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 571-272-2029. The examiner can normally be reached on Monday-Friday, 9 am to 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Burton S. Mullins  
Primary Examiner  
Art Unit 2834

bsm  
24 July 2006